Stereovision quality results of three different tests for school-children

Method

Optometrists and students worked with local schools to screen the vision of schoolchildren (7 to 19 years of age). We evaluated:
* visual acuity at far and near;
* binocular vision, phoria;
* stereopsis;
* accommodation of the eye;
* vergence facility;
* colour vision.

In pilot study we tested 4278 children, more concentrated on visual functions at near. Only 14% children had decreased visual acuity at far, but up to 32% children had the changes of near visual functions. We evaluated the quality of stereovision using three different tests - for local and global stereopsis.

Method type (global stereopsis)

<table>
<thead>
<tr>
<th>Test on paper</th>
<th>Test on computer</th>
</tr>
</thead>
<tbody>
<tr>
<td>No stereopsis</td>
<td>TNO</td>
</tr>
<tr>
<td></td>
<td>4.7%</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>1.7%</td>
<td>No</td>
</tr>
<tr>
<td>2.0%</td>
<td>Yes</td>
</tr>
<tr>
<td>1.9%</td>
<td>No</td>
</tr>
</tbody>
</table>

Type of stereovision

- **Global stereopsis**
  - TNO test
  - Thomson test

- **Local stereopsis**
  - Titmus test

Stereovision quality

In vision screening we are going to evaluate the quality of stereovision using global-type stereotest for parvocellular visual pathway also local-type stereotests for magnocellular pathway.

It is necessary to start the evaluation of global stereopsis with easy training or with large disparities (~600-800 arc sec).

We suggest for evaluation of stereovision quality to include stereostimuli for fine stereopsis (40-90 arc sec) and coarse stereopsis (200-400 arc sec).

If stereocomplexity is decreased (>120 arc sec) or absent then it could indicate visual problems with accommodation, phoria, convergence, decreased visual acuity in one or both eyes or neurological problems.

Conclusion

In vision screening we are going to evaluate the quality of stereovision using global-type stereotest for parvocellular visual pathway also local-type stereotests for magnocellular pathway.

References